

AVERAGE CRITICAL ORGAN DOSE RESULTS IN CERVICAL CANCER RADIOTHERAPY USING HELICAL TOMOTHERAPY

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Introduction - Purpose : The desired dose of critical organ can be achieved in radiotherapy performed with the use of the tomotherapy. Tomotherapy treatment planning systems allow for 2 and 3 dimensional, IMRT and Direct treatment planning. The aim of our study was to evaluate the mean critical organ doses of patients with cervical cancer treated with tomotherapy.

Methods - Tools : The helical tomotherapy plans of 20 patients who had undergone radiotherapy for cervical cancer were evaluated retrospectively. All of the patients were 50.4 Gy in 28 fractions that were all pelvic treated. Simulation CTs fixed with pelvic stabilizer of cervical tumor patients were sent to the treatment planning station. Target volumes and critical organ contours were drawn and CT and contour data were transferred to the planning system. In the planning system, dose volume histograms were generated for each critical organ and target volume. In the treatment mode, the cross-sectional thickness 5 cm (Jaws width), modulation 3 and the pitch 0.43 were determined.

Findings : The mean duration of treatment was 3.3 minutes. Critical organ mean doses were 49.72 Gy in the rectum, 47.26 Gy in the bladder, 0.74 Gy in the right kidney and 0.75 Gy in the left kidney, respectively

Discussion : With Helical Tomotherapy, homogeneous dose distribution and acceptable dose of critical organs can be achieved in target volumes in the treatment of cervical tumors.

Keywords: cervix, IMRT, Helical Tomotherapy, critical organs